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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,931	03/01/2002	Kazuhiko Sakamoto	4296-150 US	4435

7590

04/11/2003

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SUITE 306
100 THANET CIRCLE
PRINCETON, NJ 08540

EXAMINER

MANOHARAN, VIRGINIA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 04/11/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/086,931

Applicant(s)

SAKAMOTO ET AL.

Examiner

Virginia Manoharan

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1764

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors e.g., typographical, grammar, idiomatic, syntax and etc. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

Note the attempt to incorporate subject matter into this application by reference to the foreign patent JP-A-11-130722 at page 7, lines 24-25 of the specification.

Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1764

a. The preamble of claim 1 recites "A method for distilling a raw material liquid", however, the body of the claim does not positively recite a distilling step.

b. The recitation in claim 1, last line of "to distillate" is ambiguous and appears to be incomplete. See MPEP § 2172.01. The omitted steps are the steps of distilling and condensing to obtain a distillate?

c. It is unclear what "the column" is being referred to in claim 3, line 11 as there two columns recited in the base claim i.e., the collection column and the distillation column?

d. The claimed "... the column (T1)" in claims 5-7 and the claimed "(meth)acrylic acid is recovered" in claim 15 both lack antecedent supports.

e. Claim 14, as recited, is ambiguous especially the process of dividing the raw material liquid into two or more? Reciting --splitting or dividing the raw material into two separate streams—or the like is better.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over anyone of Applicants' Disclosure of Admitted Prior Art, Sakamoto et al (5,315,037) or Kuragano et al (4,987,252) in view of Funk (5,132,918) or Japan (56-122327).

Anyone of applicants' admission at pages 6-7 through page 8, lines 1-11, Sakamoto et al or Kuragano et al discloses a process/method comprising "...subjecting

Art Unit: 1764

gas phase catalytic oxidation reaction of propylene and/or acrolein with a molecular oxygen-containing gas or by gas phase catalytic oxidation reaction of at least one selected from the group consisting of isobutylene, t-butyl alcohol and methacrolein with the molecular oxygen-containing gas to form a mixed gas; and feeding the resulting mixed gas to a (meth)acrylic acid collection column wherein materials containing (meth)acrylic acid are collected with a collection agent.." as broadly claimed in claim 1.

See the abstract of Kuragano et al, and the claims at cols. 10-12 of Sakamoto et al.

The process/method of anyone of applicants' admission, Sakamoto or Kuragano differs from the claimed invention in that claim 1, for example, recites the process of "feeding to a distillation column the raw material liquid which temperature is substantially equal to that of an entrance place in the column".

However, said limitation would have been obvious to one of ordinary skill in the art in view of Funk's teaching at col. 6, lines 22 and the abstract of JP '239. That is, Funk teaches that it will be appreciated by those skilled in the art that such means for sensing temperatures ... may be provided for all of the principal fluid flow lines and for all desired trays or other internal points in the column ..."

Furthermore, Funk teaches at col. 6, lines 59-68 that "... distillation towers also provide means for controlling the temperature of the feed supply to the column... Typically these comprise means for controlling the amount of heat supplied to the feed ... upstream of the feed inlet point"; and at col. 15, line 52-54 of providing a control device for controlling the temperature of said feed stream.

Art Unit: 1764

To incorporate Funk's teaching supra to the process/method of anyone of applicants' admission, Kuragano et al or Sakamoto et al would have been obvious to one of ordinary skill in the art inasmuch as Kuragano et al suggests e.g., that the polymerization of methacrylic acid and the like as well as the formation of a solid matter from terephthalic acid and the like are serious problems which may be generally solved when the temperature is controlled as low as possible.

The concentration in the raw material liquid claimed in claim 2, the temperature ranges falling within the formula in claims 5-7, the fluctuation range in claims 8-10; the pressure, temperature and reflux ratio in claim 18 are all deemed to be result-effective - variables which ordinarily are within the skilled of the art.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. EP '545 discloses a process of recovering methacrylic acid.
- b. Coyle discloses a process for methacrylic acid separation.
- c. JP '239 discloses introducing the reaction product gas into a collector maintained to the temperature of the gas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 703-308-3844. The examiner can normally be reached on Tuesday-Friday from 7:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-4311. The fax phone numbers

Application/Control Number: 10/086,931


Page 6

Art Unit: 1764

for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9462 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

V. Manoharan/mn
April 8, 2003


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ART UNIT 125 / 764
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